(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 12 May 2005 (12.05.2005)

PCT

(10) International Publication Number WO 2005/043702 A1

(51) International Patent Classification7: G02B 6/10, H01S 5/343, G02B 6/42

H01S 5/20,

(21) International Application Number:

PCT/GB2004/003959

(22) International Filing Date:

16 September 2004 (16.09.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 0323905.0

11 October 2003 (11.10.2003) GB

(71) Applicant (for all designated States except US): IN-TENSE PHOTONICS LTD [GB/GB]; 4 Stanley Boulevard, Hamilton International Technology Park, High Blantyre, Glasgow G72 0BN (GB).

(72) Inventor; and

- (75) Inventor/Applicant (for US only): QIU, Bocang [CN/GB]; Intense Photonics Ltd, 4 Stanley Boulevard, Hamilton International Technology Park, High Blantyre, Glasgow G72 0BN (GB).
- (74) Agent: CHARIG, Raymond; Eric Potter Clarkson, Park View House, 58 The Ropewalk, Nottingham NG1 5DD (GB).

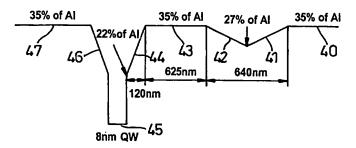
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CONTROL OF OUTPUT BEAM DIVERGENCE IN A SEMICONDUCTOR WAVEGUIDE DEVICE



(57) Abstract: A semiconductor laser device incorporates a beam control layer (42, 41) for reducing far field and beam divergence. Within the beam control layer, a physical property of the semiconductor material varies as a function of depth through, the beam control layer, by provision of a first sub-layer (42) in which the property varies gradually from a first level to a second level, and a second sub-layer (41) in which the property varies from said second level to a third level. In the preferred arrangement, the conduction band edge of the semiconductor has a V-shaped profile through the beam control layer.



